Incidence and predictors of surgical site infection following cesarean section at Debre-Markos referral hospital in Amhara region, North-west Ethiopia: prospective cohort study

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Abstract

Background: Surgical site infection is the second most common infectious complication after urinary tract infection following a delivery by caesarean section. Despite the large number of caesarean section performed at Debre Markos Referral Hospital, there has no study documenting the incidence of Surgical site infection after caesarean section, which was relatively common occurrence.

Methods: This was a prospective cohort study involving pregnant women who had a Caesarian Section between March 28, 2019 and August 31,2019 at Debre Markos referral hospital. A total of 520 pregnant women were enrolled. Preoperative, intraoperative and postoperative data were collected using a standardized questionnaire. Data was entered using EpiData Entry software and analyzed using R statistical software. Descriptive summary of the study participant was characterized using tables, graph, mean, median and interquartile range. The time for the development of surgical site infection was estimated using Kaplan-Meier method. Log rank test was utilized to compare the estimated survival curve of patients across categorical variables. Variables with P-values <0.25 in bivariable analysis were a candidate in the final multivariable survival model to identify the predictors of the incidence of SSIs. Hazard Ratio with 95% CI was used to report effect of predictor with p-value 0.05 to declare significance of association.

Result: The mean age of the study cohort was 27.4 ±4.8 years. Surgical site infection occurred in 132 patients, comprising 25.4% of the study cohort. The overall cumulative incidence of SSI was 25.4% with an incidence rate of 11.7 (95%CI: 9.8, 13.9) per 1000 person/days. Women not able to read and write (AHR=1.30:95% CI, 1.19, 2.11), no ANC (AHR=2.16:95% CI: 1.05, 4.53),

previous history of CS (AHR=1.21,95%CI: 1.11, 2.31), HIV positive (AHR=1.39,95% CI: 1.21, 2.57), emergency procedure (AHR=1.13955 CI: 1.11, 2.43), vertical type of incision (AHR=2.60, 95%CI:1.05, 6.44), rupture of membrane (AHR=1.50, 95% CI:1.31, 1.64), multiple viginal examination (AHR=1.88 ,95% CI: 1.71, 3.20) were significant predictors of SSI in this study.

Conclusion/Recommendation

This study concludes that the incidence of surgical site infection following caesarian section was relatively high compared to previously published studies. Women who are not educated, women did not have ANC follow up, previous history of CS, HIV positive, emergency surgery, vertical type of incision, rupture of membranes before CS and multiple vaginal examinations were significant predictors of SSI in this study. Therefore, intervention programs should focus on the identified factors to improve to minimize and prevent the infection rate after caesarean section.

Key words: Incidence, surgical site infection, caesarian section, predictors, Debre Markos